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The Absorption of Glycine and d, l-Alanine.

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The rate of intestinal absorption of glycine and alanine has been studied with the method described in a previous publication.[1] Groups of 10 rats were killed 1, 2 and 3 hours after feeding a 15 per cent solution of the amino acid by stomach tube. The average absorption coefficients (*i. e.*, the amount absorbed per 100 gm. of body weight per hr.) for glycine were as follows: 1 hr., 0.048 gm.; 2 hours, 0.050 gm.; 3 hours, 0.046 gm. The values obtained for d, l-alanine were: 1 hour, 0.044 gm.; 2 hours, 0.044 gm.; 3 hours, 0.047 gm. If these values are plotted against time, it will be found that they fall on a straight line. Since the rate of absorption of different hexoses and pentoses was also found to follow a straight line,[1] the same considerations that were made with respect to the sugars, apply to the amino acids. The rate of absorption is, within wide limits, independent of the absolute amount and the concentration of amino acid present in the intestine. If this were not the case, the rate of absorption would be represented by a curve rather than a straight line.

A mixture of equal parts of glycine and alanine was absorbed at a rate of 0.061 gm. per 100 gm. of body weight per hour. One would expect a rate of absorption of 0.09 gm., if each amino acid was absorbed independently from the mixture. It has been found previously,[2] that when glucose and galactose are absorbed from a mixture, the rate of absorption of both sugars is reduced to such an extent that the total amount of sugar absorbed is not much greater than if glucose alone or galactose alone were being absorbed. The same applies to a mixture of glycine and alanine. This phenomenon, which has been called mutual inhibition of absorption, was also present when a mixture of sugar and amino acid was fed. Thus, from a mixture of glucose and glycine in molecular proportion only 0.102 gm. of glucose and 0.041 gm. of glycine were absorbed per 100 gm. of body weight per hour. However, when glucose or glycine are fed alone, the absorption coefficients are 0.180 and 0.048 gm. respectively.

It has been shown recently by several investigators[3, 4, 5] that mixtures of amino acids and sugars undergo marked changes in optical rotation. This has been ascribed to the formation of a sugar-amino acid compound. It seemed of interest to study whether such

a combination of sugar and amino acid played a rôle in the absorption of these two substances from a mixture. If this were the case, for each molecule of sugar one molecule of amino acid should be absorbed, irrespective of the molecular proportion in which sugar and amino acid are present in the mixture. However, the experiments did not bear this out. For molecular proportions of mixtures of glucose and glycine of 1:1, 1:0.86, 1:0.6 and 1:0.5, the molecular proportion of absorption was 1:0.96, 1:0.89, 1:0.57 and 1:0.52 respectively. In other words, the molecular proportion of absorption is parallel to the molecular proportion of the mixture. These findings make it very likely that sugars and amino acids are absorbed at the same place of the cell structure.

[1] Cori, Carl F., *J. Biol. Chem.*, 1925, lxvi, 691.
[2] Cori, Carl F., PROC. SOC. EXP. BIOL. AND MED., 1926, xxiii, 290.
[3] Neuberg and Kobel, *Biochem. Z.*, 1925, clxii, 496; 1926, clxxiv, 464.
[4] Borstook, H., and Wasteneys, H., *Biochem. J.*, 1925, xix, 1136.
[5] Euler, H. V., and Josephson, K., *Z. Physiol. Chem.*, 1926, cliii, 3.

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Fiber Connections and Functions of the Corpus Striatum in the Cat.

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A destructive lesion was placed in the left lenticular nucleus of forty cats. These animals were allowed to live from 9 to 11 days and their symptoms carefully observed. The 15 brains containing the best lesions were then prepared by the Marchi method for degenerated nerve fibers.

The following efferent fiber systems were found to have their origin in the *globus pallidus:*

1. A lateral strio-bulbar fasciculus, closely associated with the lateral cortico-bulbar tract, is composed of (a) a primary, homolateral division to the masticator, facial and ambiguous nuclei; (b) a secondary division to the trochlear, abducens, and hypoglossal nuclei of both sides; (c) a crossed division decussating with the *brachium conjunctivum* to reach the masticator, facial and ambiguous nuclei of the opposite side.

2. A strio-tegmental fasciculus terminates in the interstitial nucleus of Cajal, the nucleus of Darkschewitsch, and the oculomotor nucleus of the homolateral and perhaps also of the opposite side.